

**REMARKS**

Claims 1-16 and 23-32 are pending. Claims 1-16, 23, 25, 28 and 30 stand rejected as discussed more fully below. Claims 24 and 29 stand objected to, but would be allowable if rewritten in independent form. Claims 26, 27, 31 and 32 stand allowed. Applicants thank the Examiner for the notice of allowable subject matter.

Claims 24 and 29 have been amended in order to overcome objections. The amendments serve to clarify and distinguish the claimed subject matter.

The foregoing amendments are taken in the interest of expediting prosecution and there is no intention of surrendering any range of equivalents to which Applicant would otherwise be entitled in view of the prior art.

By amending the application, the Applicants do not concede that the patent coverage available to them would not extend as far as the original claim. Rather, Applicants reserve the right to file a continuation application to pursue the breadth of the claims as filed. Applicants believe that the Examiner has not made a sufficient showing of inherency of the teachings of the asserted prior art, especially given the lack of teachings in the cited references of the properties that Applicants have recited in their claims.

Further, by the present amendment, it does not follow that the amended claims have become so perfect in their description that no one could devise an equivalent. After amendment, as before, limitations in the ability to describe the present invention in language in the patent claims naturally prevent the Applicants from capturing every nuance of the invention or describing with complete precision the range of its novelty or every possible equivalent. See, Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 62 USPQ2d 1705 (2002). Accordingly, the foregoing amendments are made specifically in the interest of expediting prosecution and there is no intention of surrendering any range of equivalents to which Applicants would otherwise be entitled.

Applicant respectfully submits that claims 1-16 and 23-32 are now in condition for allowance.

No new subject matter has been added.

In view of the claim amendments and following remarks, Applicant respectfully requests allowance of claims 1-16 and 23-32.

### **Objections to Claims**

Claims 24 and 29 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form. Applicants have amended claims 24 and 29 to comply with the objection. Thus, claims 24 and 29 are now in allowable form.

### **Rejection of Claims**

Claims 1-16 stand rejected under 35 U.S.C. § 112 as containing new matter. Claims 8-16, 23, 25, 28 and 30 stand rejected under 35 U.S.C. § 102(e) as anticipated by, or alternatively under 35 U.S.C. § 103(a) as obvious over Klaerner. Applicant respectfully traverses the rejections based on the following remarks.

#### **Rejection of Claims 1-16 under 35 U.S.C. §112**

With regard to claims 1 and 8, the Office action states that the term “vinyl acetate” as used in the claims constitutes new matter. Applicants respectfully disagree. Support for this claim limitation can be found, for example, at page 24, line 30, which lists vinyl acetate as one suitable hydrophobic monomer that can be used in polymers of the present invention, and page 25, line 3, which lists the log p value of vinyl acetate. Applicants submit that these disclosures are in addition to using vinyl acetate as an intermediate to create vinyl alcohol units. Clearly, Applicants had possession of the invention including a polymer with a vinyl acetate unit. The log p values are listed in order to calculate the log p difference between the two monomers in the random block of the invention. The inclusion of a log p value for vinyl acetate supports the position that Applicants had possession of a polymer that included a vinyl acetate unit. If Applicants only intended vinyl acetate to be used as an intermediate, no log p value would be

disclosed, because there would be no need to use that value to calculate a log p difference in the random block.

In view this support, Applicant respectfully requests that the Examiner withdraw the § 112 rejections of claims 1-16.

102 and 103 Rejections

Claims 8-16, 23, 25, 28 and 30 stand rejected under § 102 as anticipated by, or alternatively under § 103 as obvious over Klaerner. Applicants submit that the claims are not anticipated or made obvious by the reference because the reference does not disclose or suggest every feature of claims 8-16, 23, 25, 28 and 30.

Claims 8 and 28

The Office Action points to Paragraph 203 of Klaerner as disclosing the claimed features of the invention. A single site initiator/control agent adduct is used in the reaction. A block of styrene is first polymerized, then acrylic acid and styrene monomers are added to grow a random block of styrene and acrylic acid from an end of the styrene block. Finally, butyl acrylate monomer is added and polymerized onto the end of the acrylic acid/styrene block. The resulting polymer has a block of styrene, a random block of styrene and acrylic acid stemming from one end of the styrene block, and a block of butyl acrylate stemming from the end of the random block. This is an A-R-B block copolymer as defined in the specification of the present application. See specification, at page 9, lines 1-5.

In contrast, independent claims 8 and 28 require that the block copolymer has the structure A-B-A, where A and B are polymeric blocks. These structures are not disclosed in Klaerner. The copolymer disclosed in the example of Klaerner does not contain two A blocks. Thus, Klaerner is disclosing a polymer with the structure A-R-B, and not A-B-A. For at least this reason, independent claims 8 and 28 and their dependent claims are patentable over Klaerner.

The Office action states that there is nothing in the claims to indicate that the A blocks need to be identical. With regards, to claim interpretation, the Federal Circuit has laid out the standard:

[The] PTO applies to language of proposed claims broadest reasonable meaning of words in their ordinary usage as they would be understood by one of ordinary skill in art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by written description in applicant's specification.

*In re Morris*, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997)(emphasis added).

During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow.

*In re Zletz*, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)(emphasis added).

Applicants submit that the interpretation of claims 8 and 28 made by the Office action is unreasonable in view of how one of ordinary skill in the art would use the claims. Applicants submit that the usage of ABA to characterize a polymer structure is well known in the art for describing a block copolymer wherein the A blocks comprise similar repeat unit types. The polymer in *Klaerner* would better be understood by those of skill in the art to be an ABC block copolymer, where all three blocks are compositionally different from each other. Applicant submits herewith in Appendix A several examples from textbooks, scientific papers and US patents of how the term ABA is understood and used in a polymeric block context by those of skill in the art.

Applicants respectfully submit that no person of ordinary skill in the art would interpret a polymer as disclosed in *Klaerner* to be an ABA block copolymer. The blocks of styrene and butyl acrylate would be interpreted as an A block and a B or C block. Furthermore, Applicants submit that no person of ordinary skill in the art would interpret the claim limitation ABA structure to mean that the two A blocks may be composed of entirely different monomers as the Office action has done.

Additionally, the Office action has asserted that the solubility limitations of claims 8 and 28 are inherent in *Klaerner*. To the extent that the Office is relying on inherency, such reliance is

inappropriate. Inherency may not be established by possibilities or probabilities; rather, the required feature must necessarily follow from the teaching of the reference. *See* MPEP 2112; *Continental Can Company USA vs. Monsanto Company*, 20 USPQ2d 1746 (Fed. Cir. 1991). In the present case, meeting the solubility limitations of the present claims by making the polymer having hydrophilic and hydrophobic monomer in the random block recited in Klaerner would not necessarily occur when polymerized. Solubility of the resulting polymer is dependent on many factors, including designing and adjusting the ratios of hydrophilic to hydrophobic monomer in the random block as well as the design of the overall polymeric block. Synthesis of a block copolymer as broadly taught in Klaerner, would not necessarily meet the solubility limitations of claims 8 and 23 every time. A skilled artisan would not, therefore, have considered Klaerner to teach a polymer that is specifically directed to meeting the specific solubility limitations.

To the extent the Office action is relying on inherency of the synthesis of a block copolymer for meeting the disclosed solubility limitations of claims 8 and 28, such reliance is misplaced in the context of an obvious determination. Courts have long held that inherency and obviousness are entirely different questions. “That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.” *In re Shetty*, 195 USPQ 753 (CCPA 1977) quoting *In re Spormann* 150 USPQ 449 (CCPA 1966). *See also In re Rijckaert*, 28 USPQ2d 1955 (Fed. Cir. 1993). Hence, the inherent application of Klaerner’s polymer cannot form the basis for rejecting the claims as obvious since inherency is immaterial if one of ordinary skill in the would not have necessarily understood the polymer to meet the claimed solubility limitations. *See In re Naylor*, 152 USPQ 106 (CCPA 1966). That is, even if a skilled artisan may have appreciated that the claimed solubility limitations can be achieved, this does not support an obviousness determination because such knowledge would not necessarily have led to the inventions as presently claimed.

#### Claim 9

Furthermore, claim 9, which depends from claim 8, requires the random block to be disposed between at least one of the A and B blocks. Klaerner clearly does not disclose this feature. Klaerner only discloses a polymer with three blocks. The polymer of claim 9 has at least 4 blocks – an A block, a B block, an A block and a random block disposed between one of the A blocks and the B block.

Because Klaerner does not teach or suggest each feature of the presently claimed invention and there is no motivation to modify the structure of Klaerner to meet the claimed invention, the Examiner fails to establish a prima facie case of obviousness. See MPEP §2143. Accordingly, Applicants respectfully request that this rejection be withdrawn.

### Claim 23

Additionally, independent claim 23 requires the block copolymer to have the formula  $(AB)_n$ -Core, where A and B are polymeric blocks and Core is a non-polymeric linking core.

The Office action at page 4 discusses Klaerner only in the context of the presently-pending claims which do not require a non-polymeric linking core. Applicants submit that Klaerner does not disclose or suggest the use of a non-polymeric linking core, and the comments of the Office action appear to support this point.

Because Klaerner does not teach or suggest each feature of the presently claimed invention and there is no motivation to modify the structure of Klaerner to meet the claimed invention, the Examiner fails to establish a prima facie case of obviousness. See MPEP §2143. Accordingly, Applicants respectfully request that this rejection be withdrawn.

### Conclusion

Attached hereto is Appendix A showing examples of the use of the phrase A-B-A block copolymer by those of ordinary skill in the art as discussed above. The attached pages are captioned "**Appendix A.**"

In view of Applicants amendments and remarks, the Office action's rejections are believed to be rendered moot. Accordingly, Applicants submit that the present application is in condition for allowance and requests that the Examiner pass the case to issue at the earliest convenience. Should the Examiner have any question or wish to further discuss this application, Applicant requests that the Examiner contact the undersigned at (408) 720-2598.

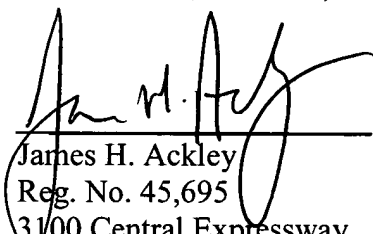
If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent the abandonment of this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-0496 for any fee which may be due.

Respectfully submitted,

SYMYX TECHNOLOGIES, INC.

Date: 2-9-04

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**APPENDIX A**

Attached hereto are examples of the use of the phrase A-B-A block copolymer by those of ordinary skill in the art:

1 – cover page and pages 7 and 206 of Stevens, M., “Polymer Chemistry An Introduction” (3<sup>rd</sup> ed. 1999);

2- an excerpt from the uspto website class definitions section, calling a styrene block flanked by two butadiene blocks an ABA block( the website location is **[www.uspto.gov/go/classification/uspc525/defs525.htm](http://www.uspto.gov/go/classification/uspc525/defs525.htm)** ;

3-Sperling, L.H. , Nomenclature and National Problems in the Phase Separation Characteristics of Block Copolymers, **[www.polyacs.org/nomencl/pmse.phasesep.html](http://www.polyacs.org/nomencl/pmse.phasesep.html)** ;

4- US Patent No. 6,685,925; and

5 – US Patent No. 6,649,707.